## REMARKS

Claims 1 – 17 are presently pending in this application.

The Examiner rejected claim 1 under 35 U.S.C. §103(a) as being unpatentable over Inagaki et al. (U.S. Patent No. 5,890,789) in view of Jutte et al (U.S. Patent Publ. No. 2005/0151052). The Examiner argues that Inagaki discloses in Figures 4 and 5 all the elements of claim 1, except for the diffractive element and the control circuit. The Examiner looks to Jutte to supply those missing elements.

We submit, however, that Jutte fails to remedy the shortcomings of Inagaki. First, a person of ordinary skill in the art would not combine the teachings of Jutte with those of Inagaki in the manner proposed by the Examiner for at least two reasons: (1) Jutte addresses a problem that has no relevance to the Inagaki system; and (2) the modification which would result by implementing the error detection mechanism described by Jutte would compromise the performance of Inagaki's system. Second, even if one were to combine Jutte with Inagaki, the result would still be missing "a control circuit which during operation generates the AOD control signal and varies a characteristic of the AOD control signal to account for errors in the scanning system." We will address each of these reasons in greater detail below.

1. Jutte's Technology Is Not Relevant to the Inagaki System

Jutte addresses a problem that has no relevance to the Inagaki system, and because of that, a person of ordinary skill in the art would not combine the teachings of Jutte with those of Inagaki in the manner proposed by the Examiner. Jutte's invention involves detecting tracking errors; whereas Inagaki's invention involves image formation. Jutte's apparatus for correctly tracking radial tracks of an optical disk, is incompatible with the multi-beam emitting apparatus for scanning and image-formation, disclosed by Inagaki.

Specifically, Jutte's scanning system employs tracking error detection and control for reading information from an optical disk. This scanning system is designed to read information stored along established tracks in the medium being read:

> Information may be stored in the information layer or layers of the optical disk in the form of optically detectable marks arranged in substantially parallel, concentric or spiral tracks. The marks may be in any optically readable form... [0015]

Multiple beams, generated by a diffraction grating, are used to detect tracking errors.

> A diffraction grating element 6 is used for forming three separate beams...for performing three spots push-pull radial tracking. [0016]

The multiple beams generated by the diffraction grating are used to ensure the scanning device is "correctly tracking tracks of the optical disk" [0018]. Thus, Jutte's apparatus detects information along established tracks and accounts for errors in the scan resulting from deviations from the established track.

In contrast, Inagaki's system has nothing to do with tracking, let alone detecting radial tracking errors. Inagaki's apparatus does not perform scanning and error detection constrained to an established track. Instead, Inagaki employs to multi-beam emitting devices in an optical apparatus for scanning or forming any variety of image patterns. Inagaki explains:

> The present invention relates ... more particularly to a multi-beam emitting device which is suited to be employed in an optical switch and an optical modulator of an optical computer, an optical switch, an optical branching filter and an optical modulator of an optical communicating apparatus and an optical deflector and an optical modulator of a laser printer, a copying machine, a scanner, etc. (col. 1 lines 7-14, emphasis added).

Laser printers, copying machines, and scanners do not read information stored along established tracks, nor do they form images arranged along established tracks on the paper on which the image is being formed. Indeed, applicants could find no teaching or suggestion in Inagaki of detecting tracking errors of any kind. Inagaki discloses nothing equivalent to a track and does not have any need for features presented in Jutte.

For at least these reasons, applicants believe that a person of ordinary skill in the art would not combine the components comprising the optical scanning device of Jutte with the multi-beam emitting device of Inagaki.

2. The Proposed Change Would Compromise the Performance of the Inagaki System

The combination of elements proposed by the Examiner would compromise the individual beam modulation and intensity control feature of the multi-beam emitting device of Inagaki. Combing the diffractive grating element disclosed by Jutte with the multi-beam emitting device of Inagaki would disrupt the performance of Inagaki's apparatus.

Jutte uses a diffraction grating element to produce, from a single beam, multiple beams used in tracking an optical disk. More specifically, Jutte's diffraction grating element forms three separate beams for performing three spots push-pull radial tracking [0016]. In Figure 1, Jutte shows that the multiple separate beams from the diffraction grating are subsequently focused "onto spots on an informational layer in the disk OD" [0016].

Inagaki uses an acoustooptic element to generate a plurality of beams from a single incident beam (Figure 4). Each output beam of $L_1$ through $L_3$ is selectively turned on and controlled by a corresponding high-frequency electric signal, $f_1$ through $f_3$. The high-frequency electrical signals are based on image signal data. Inagaki explains:

> In the modulating circuit 22, the three electric signals with frequencies $f_1$ through $f_3$ are modulated (are turned on and off) individually based on the image signals sent from the image signal processor 21, and also, the number of beams emitted from device 1 is determined (col. 8 lines 19-24, emphasis added).

Inagaki discloses controlling intensity of the modulated beams that have been turned on. The intensity of incident beam L is controlled such that the intensities of each selected output beam $L_1$ through $L_3$ are kept constant during scanning.

> ...because the laser beam L emitted from the laser diode 2 has an intensity which is proportional to the number of beams into which the laser beam L is to be split, the intensity of each of the output beams L1 through L3 can be kept constant at all times regardless of the number of beams emitted from the multi-beam emitting device 1 (col. 9 lines 17-22).

Thus, Inagaki teaches independently modulating each output beam and, for each output beam turned on, keeping the intensity of that output beam constant.

Directing any one of the output beams of Inagaki (e.g. $L_1$) through the diffractive grating element of Jutte would generate a plurality of subsequent beams. Those subsequent beams would not be individually modulated (turned on and off) but instead would be uniformly modulated, based on the single corresponding electrical signal (e.g. $f_1$). Furthermore, those subsequent beams generated from e.g. $L_1$ would, as a result of the diffraction, have a range of intensities, each less than $L_1$. Those subsequent beams would have a range of intensities, depending on the number of subsequent beams into which $L_1$ is diffracted. Thus, the proposed combination of the diffractive element of Jutte, with the apparatus of Inagaki, would fail to produce either the individually modulated beams or beams of constant intensity used in Inagaki's scan. The proposed combination would render a system that fails to provide the beam control Inagaki requires to produce quality scans.

3. The Combination Still Lacks a Key Element

Even if one were to combine the Inagaki and Jutte references as proposed by the Examiner, the result would not be the claimed invention. Contrary to what the Examiner appears to believe, Jutte does not teach or suggest the control circuit missing from Inagaki. Specifically, Jutte does not disclose "a control circuit which during operation generates the AOD control signal and varies a characteristic of the AOD control signal to account for errors in the scanning system" as recited in claim 1.

Jutte discloses error tracking: "all detector elements…supply an output signal and these signals are supplied to an electronic processing circuit, wherein the output signals are combined and processed to a read-out signal, a focus error signal and a tracking error signal" [0024]. Applicants find no indication in the Jutte reference that the focus and tracking error signals are or could be used to vary a characteristic of an AOD control signal to account errors in the scanning system. Jutte explains that "the tracking error processing circuitry is adapted to compensate" for differences in grating ratios [0026]. The Examiner has not indicated how tracking error processing circuitry that compensates for different grating ratios (Jutte) could be used to vary a characteristic of an AOD control signal. There is no indication in the Jutte reference that tracking error processing circuitry

may be used to control any aspect of an acoustooptic deflector, let alone generate an AOD control signal. Thus, even if one were to combine the control circuit of Jutte with the apparatus of Inagaki, the combination would not render the recited control circuit for generating an AOD control signal.

For the reasons articulated above, Applicants believe that the claims are in condition for allowance and ask the Examiner to allow the application to issue.

The fee for a two-month extension accompanies this response. Please apply any charges not covered, or any credits, to Deposit Account No. 08-0219.

Respectfully submitted,

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Eric L. Prahl
Registration No.: 32,590
Attorney for Applicant(s)

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
(617) 526-6000 (telephone)
(617) 526-5000 (facsimile)